

CLAIMS:

1. A closure system comprising a cap, a neck and tamper evident means integrally moulded in a unitary structure, the structure allowing the application of the cap to the neck whereupon the tamper evident means prevents the cap from being removed from the neck while the tamper evident means remains intact.
2. A closure system according to claim 1, wherein an intermediate member is joined to the neck at a first frangible connection and joined to the cap at a second frangible connection, the first frangible connection being adapted to break upon application of the cap to the neck whereupon the intermediate member co-operates with the neck and the cap to form said tamper evident means.
3. A closure system according to claim 2, wherein said intermediate member comprises an annular band adapted to pass over the neck upon application of the cap to the neck and a transition member joined to the annular band, the transition member being adapted to co-operate with the neck to resist the subsequent removal of the annular band from the neck.
4. A closure system according to claim 3, wherein the transition member is hinged to the annular band.
5. A closure system according to claim 3 or claim 4, wherein the annular band is joined to the transition member by a web, the web forming a hinge permitting the transition member to flex with respect to the annular band.

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6. A closure system according to claim 5, wherein the web constitutes a region of reduced thickness.

7. A closure system according to any of claims 3 to 6,  
5 wherein the neck is provided with a locking wall, the transition member being adapted to engage with the locking wall to resist subsequent removal of the annular band upon application of the cap to the neck.

10 8. A closure system according to any of claims 3 to 7, wherein the transition member is joined to the neck at said first frangible connection, said first frangible connection being adapted to break upon application of the cap to the neck only after the act of applying the cap to the neck  
15 causes the transition member to fold inwardly of the annular band.

9. A closure system according to any of claims 3 to 8, wherein upon application of the cap to the neck the  
20 transition member hinges with respect to the annular band, folding inwardly and into engagement with a locking wall provided on the neck.

10. A closure system according to any of claims 3 to 9,  
25 wherein the annular band is joined to the cap at said second frangible connection, said second frangible connection being adapted to break upon the attempted removal of the cap from the neck.

30 11. A closure system according to any of claims 2 to 10, wherein said first and second frangible connections lie within respective parallel planes.

12. A closure system according to any of claims 2 to 11,  
wherein one or both of said first and second frangible  
connections are formed as a line of weakness defined by a  
5 region of reduced thickness.

13. A closure system according to claim 8 and any of claims  
9 to 12 when dependent upon claim 8, wherein the transition  
member is tapered in the direction of said first frangible  
10 connection so that the transition member is joined to the  
neck in a region of reduced thickness.

14. A closure system according to any of claims 2 to 13,  
wherein one or both of said first and second frangible  
15 connections are formed as a plurality of frangible tabs.

15. A closure system according to claim 14, wherein said  
plurality of frangible tabs are circumferentially spaced  
with each tab being separated from an adjacent tab on either  
20 side by a pair of slits, each slit communicating at opposite  
ends thereof with a respective pair of apertures of  
increased cross-section.

16. A closure system according to claim 15 wherein a  
25 respective pair of apertures of increased cross-section  
constitutes an area of weakness disposed on either side of  
each of the tabs.

17. A closure system according to claim 3 and any of claims  
30 4 to 16 when dependent upon claim 3, wherein the transition  
member extends from the neck to the annular band within a  
generally frustoconical surface.

18. A closure system according to claim 3 and any of claims 4 to 17 when dependent upon claim 3, wherein the transition member extends from the neck to the annular band in a direction which is inclined radially outwardly at an angle of between 22° and 32° to the axis of the closure system.

19. A closure system according to claim 3 and any of claims 4 to 18 when dependent upon claim 3, wherein the transition member comprises a plurality of circumferentially spaced transition elements, the transition elements having a first circumferential dimension adjacent the annular band and a second circumferential dimension adjacent the neck, said first circumferential dimension being greater than said second circumferential dimension.

20. A closure system according to claim 19, wherein the transition elements are separated by a plurality of apertures, the apertures being arranged in groups on circumferentially opposite sides of the transition member.

21. A closure system according to claim 3 and any of claims 4 to 18 when dependent upon claim 3, wherein the transition member comprises one or more pleats or folds.

22. A closure system according to claim 3 and any of claims 4 to 18 when dependent upon claim 3, wherein the transition member comprises a plurality of circumferentially spaced transition elements separated by areas of reduced thickness.

23. A closure system in accordance with any preceding claim, wherein the cap is provided with engagement means for

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repeated and releasable engagement with complimentary engagement means provided on the neck.

24. A closure system according to claim 23 wherein the pair  
5 of complimentary engagement means comprise a pair of helical thread configurations.

25. A closure system according to claim 24 wherein the thread configuration provided on the neck is a female thread  
10 configuration.

26. A closure system according to claim 24 or claim 25, wherein the pair of thread configurations are adapted so as to permit the application of the cap to the neck by means of  
15 an axially applied force whereupon the threads on the cap slide over those provided on the neck and then interengage.

27. A closure system according to claim 26, wherein the threads on the cap are orientated with respect to those on  
20 the neck in such a way that upon axial application of the cap to the neck the respective thread configurations are placed in optimal thread engagement.

28. A closure system according to any preceding claim,  
25 wherein the cap is provided with an annular plug for receipt within a bore of the neck.

29. A closure system in accordance with any preceding claim, wherein the closure system comprises a fitment for  
30 attachment to a carton or other container.

30. A closure system according to any of claims 1 to 28, wherein the closure system is integrally moulded with a container, the neck forming a neck of the container.

5 31. A method of closing a container in a tamper evident manner comprising the steps of moulding a neck of the container in one piece with a cap and tamper evident means to form a unitary structure and applying the cap to the neck in such a way that the cap is prevented from being removed  
10 from the neck while the tamper evident means remains intact.

32. An integrally moulded closure system comprising a cap applied to a neck, the closure system including tamper evident means integrally moulded with the cap and neck, the  
15 tamper evident means preventing removal of the cap from the neck while the tamper evident means remains intact.